



NOvA Working Group Meeting

December 07, 2005

2:00 – 4:00 PM

Snake Pit

Agenda

- 1) Feedback on interchanges between the Directorate and OHEP [Mont]
- 2) Review NOvA Timeline [Ed Temple]
- 3) PED (Project Engineering and Design) Funding Request Discussion [Ed Temple/All]
- 4) LLP Long Lead Procurement Funding Request Discussion [Ed Temple/All]
- 5) Discuss John's Request for a CD-1 Director's Review in February 2006 [John Cooper /All]
- 6) NOvA Progress Report and Status on Preparation of Project Documents [John Cooper /Ron Ray]
- 7) Status of Action Items [John Cooper]

CD-0 Approval Email

From: Staffin, Robin [mailto:Robin.Staffin@science.doe.gov]
Sent: Tuesday, November 29, 2005 8:08 AM
To: Abe Seiden; 'weerts@anl.gov'; 'Drell, Persis S.'; Dorfan, Jonathan (SLAC); 'samaronson@bnl.gov'; Oddone, Pierre (FNAL); 'jsiegrist@lbl.gov'; 'JNMarx@lbl.gov'; 'Geneb@hep.upenn.edu'; 'meyers@princeton.edu'; 'holmes@fnal.gov'; 'mont@fnal.gov'; 'rocky@fnal.gov'
Cc: Byon, Aesook
Subject: Approvals of Mission Need Statements

This is to inform the High Energy Physics community that the Director of the Office of Science, Dr. Ray Orbach, has approved the Mission Need Statements for the following potential new medium scale initiatives.

- A generic accelerator-based electron neutrino appearance experiment to measure neutrino mixing and to probe the neutrino mass hierarchy
- A generic reactor-based neutrino detector to precisely measure neutrino mixing (θ_{13})
- A generic ground-based dark energy experiment
- A generic neutrinoless double beta decay experiment to probe the Majorana nature and an absolute mass scale of neutrinos

As announced previously, the request for the approvals of the following two potential new medium scale initiatives will shortly follow:

- A high-intensity neutrino beam (Super Neutrino Beam) for neutrino CP-violation experiments
- A generic underground dark matter experiment to search for direct evidence of dark matter

Note that an approval of Mission Need (commonly referred as CD-0 approval) does not equate to an approval to proceed with the project, although it is a required step in the approval process for any new major facility or experiment. Rather, It is an expression of intent by the Office of High Energy Physics to the Department of Energy that we plan to pursue these specific scientific topics and/or facility options.

The potential projects may be located in the U.S. or in other countries; and there may be several options for the technology chosen to carry out the experiment or to build the facility. If these initiatives move forward, decisions such as technology choice and siting will come later in the approval process. The DOE's project approval process has been moving in parallel with scientific advisory processes (SAG, P5, HEPAP etc) in order to be ready to move forward expeditiously. The recommendations from the scientific advisory processes will be one of key inputs in next steps to come.

We look forward to continuing interactions with the High Energy Physics community to bring these exciting scientific opportunities to fruition.

Robin Staffin
Associate Director for High Energy Physics
Office of Science

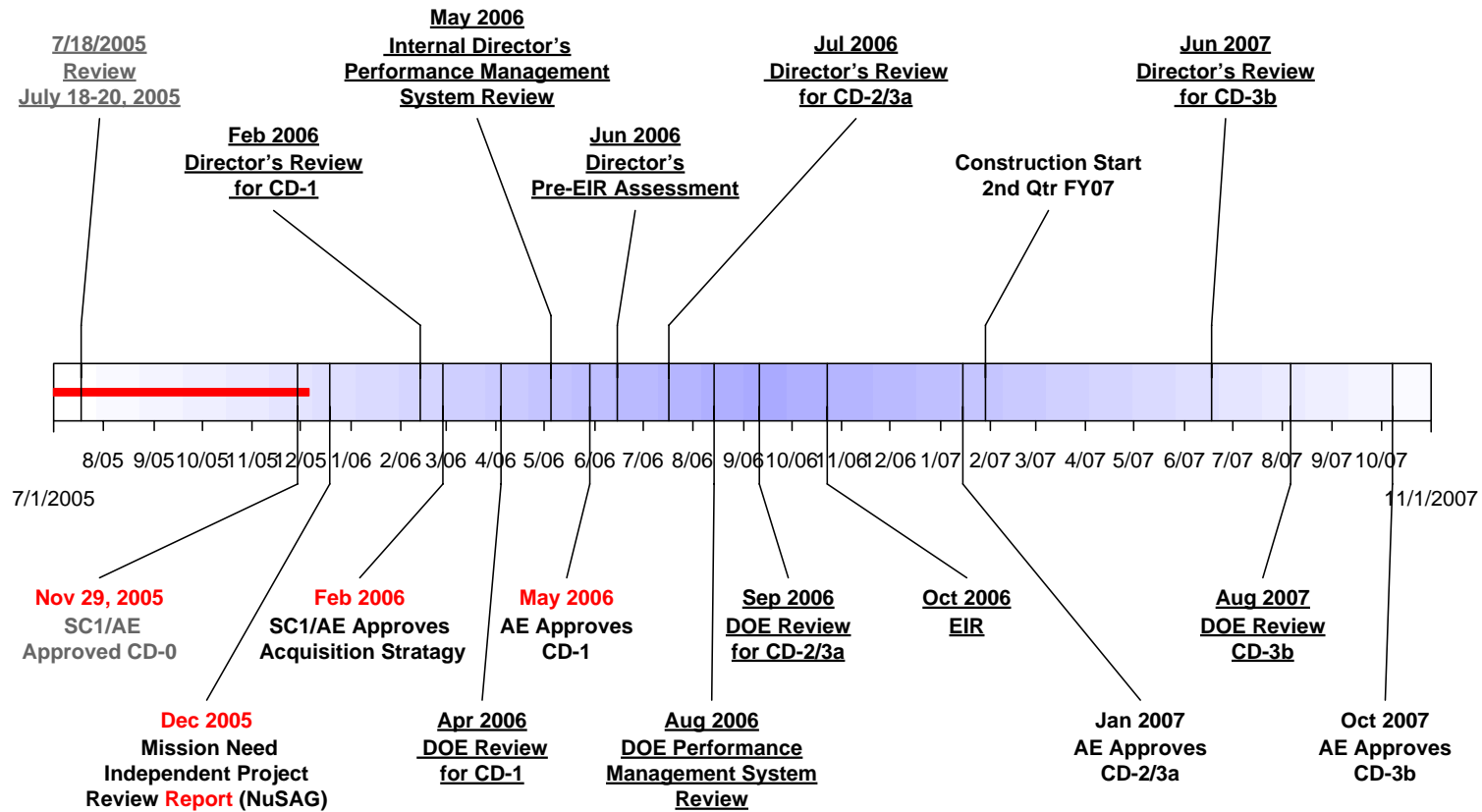


DRAFT NOvA Project Timeline for Critical Decisions & Reviews

Updated 06-Dec-05



Fermilab



Note:
Text in **Red** indicates change from prior version



NOvA Project

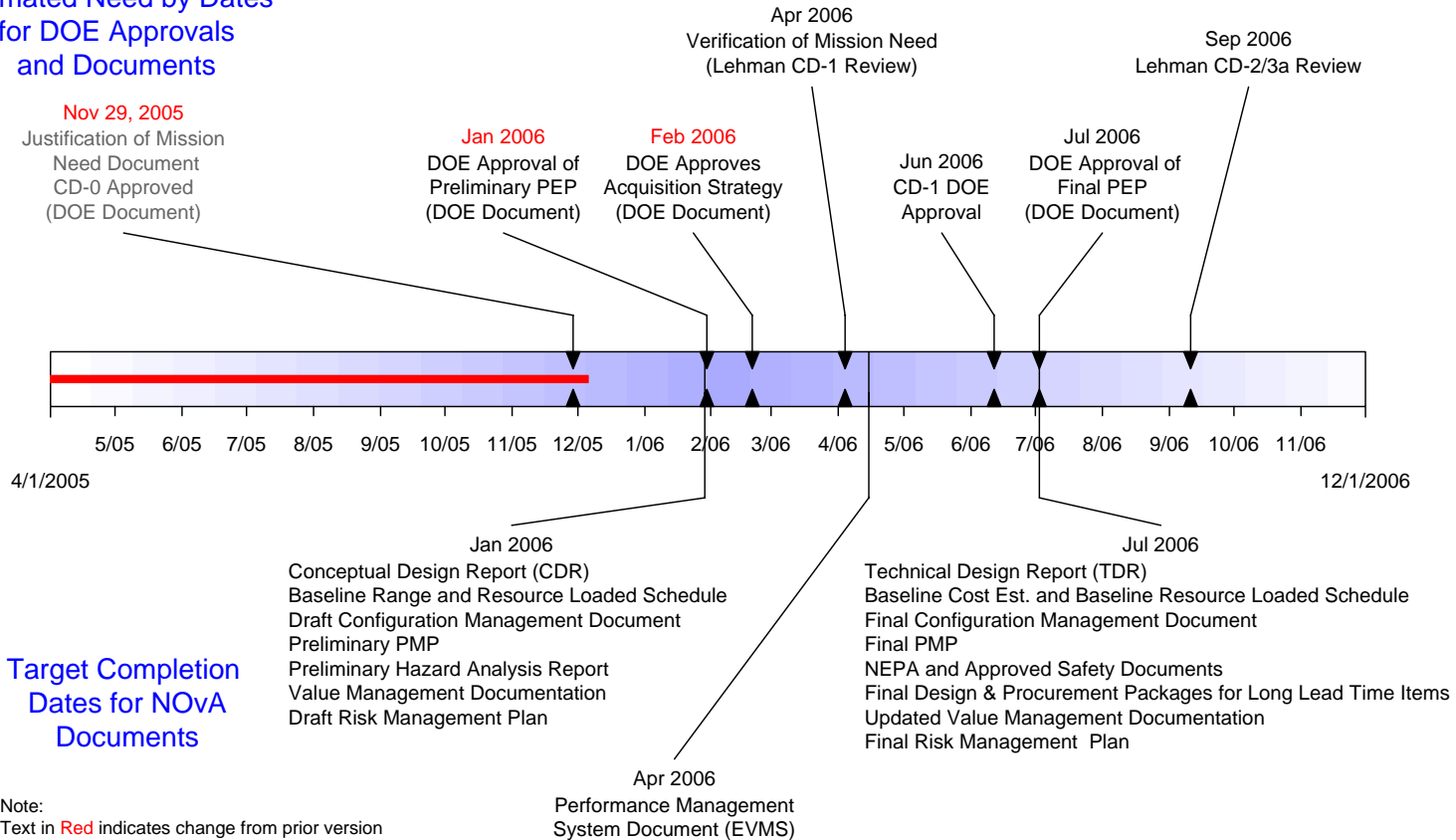
Draft Critical Design Prerequisites

Updated 06-Dec-05



Fermilab

Estimated Need by Dates for DOE Approvals and Documents



DOE O 413.3 Chg1 Attachment 4



DOE O 413.3
10-13-00

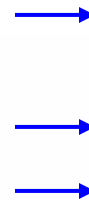
Attachment 4
Page 1

PROJECT ACQUISITION PROCESS AND CRITICAL DECISIONS					
Project Planning Phase		Project Execution Phase			Mission
Preconceptual Planning	Conceptual Design	Preliminary Design	Final Design	Construction	Operations
CD-0	CD-1	CD-2	CD-3	CD-4	
Approve Mission Need	Approve Preliminary Baseline Range	Approve Performance Baseline	Approve Start of Construction	Approve Start of Operations or Project Closeout	
<i>See Page 2 for CDs on Environmental Restoration and Facility Disposition Projects</i>					
CD-0	CD-1	CD-2	CD-3	CD-4	
Actions Authorized by Critical Decision Approval					
<ul style="list-style-type: none"> Proceed with conceptual design using program funds Request PED funding 	<ul style="list-style-type: none"> Allow expenditure of PED funds for design 	<ul style="list-style-type: none"> Establish baseline budget for construction Continue design Request construction funding 	<ul style="list-style-type: none"> Approve expenditure of funds for construction 	<ul style="list-style-type: none"> Allow start of operations or project closeout 	
Critical Decision Prerequisites					
<ul style="list-style-type: none"> Justification of mission need document Acquisition Strategy Preconceptual planning Mission Need Independent Project Review 	<ul style="list-style-type: none"> Acquisition Plan Conceptual Design Report Preliminary Project Execution Plan and baseline range Project Data Sheet for design Verification of mission need Preliminary Hazard Analysis Report 	<ul style="list-style-type: none"> Preliminary design Review of contractor project management system Final Project Execution Plan and performance baseline Independent cost estimate National Environmental Policy Act documentation Project Data Sheet for construction Draft Preliminary Safety Analysis Report Performance Baseline External Independent Review 	<ul style="list-style-type: none"> Update Project Execution Plan and performance baseline Final design and procurement packages (**) Verification of mission need Budget and congressional authorization and appropriation enacted Approval of Safety documentation Execution Readiness Independent Review 	<ul style="list-style-type: none"> Operational Readiness Review and acceptance report Project transition to operations report Final Safety Analysis Report 	
				After CD-4 <u>Closeout</u> <ul style="list-style-type: none"> Project closeout report 	

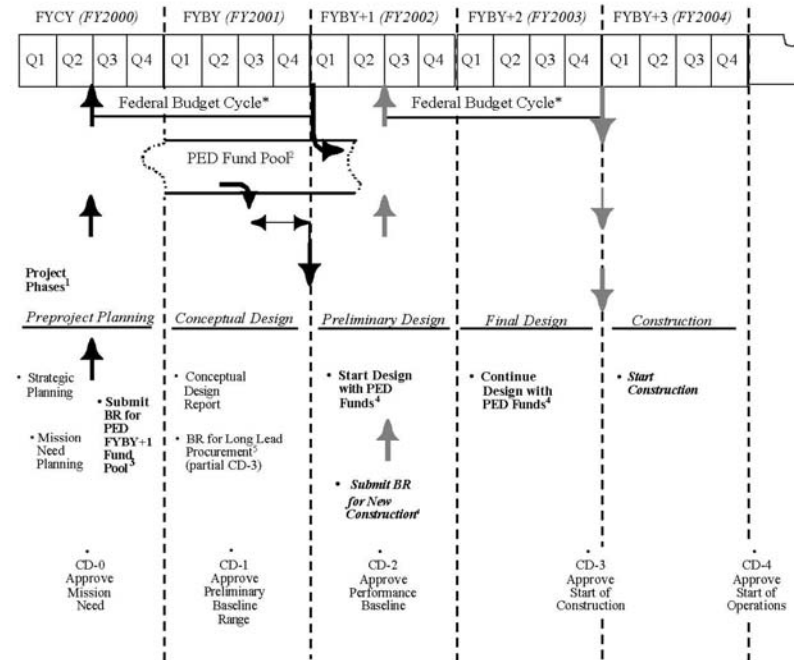
(**) To the degree appropriate to initiate construction as scheduled.

DOE O 413.3 Chg1 Attachment 6

2. The PED Fund Pool is a rolling funding source for capital design that Congress appropriates money to each year.
4. PSOs may authorize PED funds any time after CD-1 approval. This provides a window of opportunity to complete preliminary design earlier so the BR for new construction can be submitted in time for the next fiscal budget cycle.
5. If long lead procurement (LLP) is required, a BR for LLP funding should be approved as a partial CD-3 during the conceptual design phase and submitted into the budget cycle to ensure timely receipt of LLP Funds.

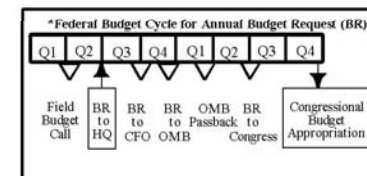


TYPICAL PROJECT PHASES CORRELATE WITH THE FEDERAL BUDGET PROCESS



1. The chart is a guide to show how the project phases might typically fit into the annual budget cycle. Actual projects will have different time frames and should be mapped against the budget cycle accordingly.
2. The PED Fund Pool is a rolling funding source for capital design that Congress appropriates money to each year.
3. PSOs perform strategic planning to build an FYBY+1 Priority Project List. The BR for PED funds for these projects is based on parametric comparisons and historical project data. In the next fiscal year, the Budget Year becomes the Current Year and the planning process starts again for the new FYBY+1 project.
4. PSOs may authorize PED funds any time after CD-1 approval. This provides a window of opportunity to complete preliminary design earlier so the BR for new construction can be submitted in time for the next fiscal budget cycle.
5. If long lead procurement (LLP) is required, a BR for LLP funding should be approved as a partial CD-3 during the conceptual design phase and submitted into the budget cycle to ensure timely receipt of LLP funds.

PED - Project and Engineering Design
BR - Budget Request
CD - Critical Decision



DOE M 413.3-1

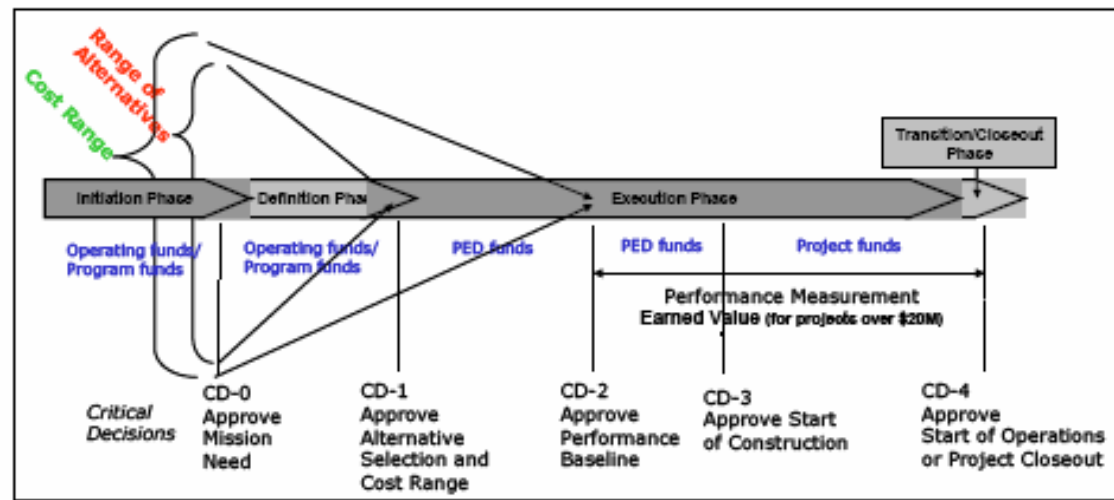


Figure 1-1. DOE Acquisition Management System.

DOE M 413.3-1

8.6 PROJECT ENGINEERING AND DESIGN FUNDS

Project Engineering and Design (PED) funds are requested using a Project Data Sheet as “design only” funds for preliminary and final design. PED funds are not to be used for construction, long-lead procurement, or major equipment items. PED funding requests are developed from historical data or parametric estimates. The objectives for the use of PED funds are to:

- Improve the accuracy of the project cost estimate and support establishment of the Performance Baseline
- Improve the DOE’s planning, programming, and budgeting process for the acquisition of projects
- Provide funds for VM activities (see OMB A-11, Section 5.3.4, and FAR).

Acquisition planning, the acquisition strategy, and Critical Decision processes play important roles in the PED process.

Critical Decision-0 determines if a capital asset is required and the date by which it will be provided. That requirement date, together with the project’s risk assessment, projected construction uncertainties, equipment lead times, funding constraints, and other related factors, will determine when to request PED funds. PED requests should be confirmed and updated as part of the Critical Decision-1 process.

DOE O 413.3 Chg1 Chapter III

Paragraph 3

- b. Once CD-0 is obtained, the AE directs development of the conceptual design, which results in a Conceptual Design Report, an Acquisition Plan, a preliminary hazard analysis, a preliminary Project Execution Plan, and preliminary baseline range. The preliminary baseline range at the design stage consists of a cost, schedule, and scope for the design phase, and a range for the cost, schedule, and scope for the remainder of the project. These documents are submitted for SAE/AE approval along with a PSO- validated PDS for design. The PSOs will establish a project and engineering design (PED) funding pool for all projects for FY2002 and beyond and for projects over \$5M TPC, as appropriate, in accordance with the DOE Budget Formulation Handbook. Where long lead procurement is required, a phased CD-3 may be used, subject to prior budget approval and funding availability. The SAE/AE will consider the above elements in making Critical Decision-1 (see Attachment 4).

DOE O 413.3 Chg 1 Chapter III

Paragraph 3 (continued)

- c. Once CD-1 is obtained, PED funds become available for use on preliminary design and final design, baseline development, and/or a statement of work/request for proposal for a design/build project. For long lead procurement, a separate budget request for capital funds (non-PED) may be submitted prior to CD-2 for a partial CD-3 determination. Attachment 6 shows the correlation between typical project phases and the Federal budget process, with emphasis on PED funding.

The project manager must obtain a draft Preliminary Safety Analysis Report and National Environmental Policy Act documentation, if appropriate. The project manager also must finalize the Project Execution Plan and performance baseline and reflect the results in the PDS for construction funding. A Performance Baseline EIR must be performed by OECM as agent for the Department on all projects over \$5M. This is a detailed review of the entire project, including an Independent Cost Estimate, prior to CD-2. It verifies that the mission need is satisfied; validates the proposed technical, cost, and schedule baseline; and assesses the overall status of the project management and control system. The results of the EIR together with any corrective actions resulting from the EIR will be reviewed by OECM and presented to the SAE/AE to assist with Critical Decision-2 (see Attachment 4).

DOE O 413.3 Chg 1 Chapter III

Paragraph 3 (continued)

- d. Once CD-2 is obtained, include the project in the budget submission. Final design would continue with PED funds through completion of the design. If requested and approved, long lead procurement funds are committed. The draft Preliminary Safety Analysis Report must be submitted for approval, and the DOE safety evaluation report will be issued, as appropriate. An Execution Readiness EIR must be performed by OECM on MS projects, and an IPR must be performed by the appropriate AE for Other Projects over \$5M. This is a general review of the project prior to CD-3 that may range from an abridged review of specific areas within a project to a comprehensive review of the entire project. As a minimum, it verifies the readiness of the project to proceed into construction or remedial action. The results of the EIR/IPR and any corrective actions resulting from the EIR/IPR shall be reviewed by OECM and shall be presented to the AE and ESAAB equivalent board in conjunction with CD-3. The AE may request an EIR in lieu of an IPR through OECM. The Project Execution Plan and performance baseline will be updated, if required. These activities will be considered by the SAE/AE in making Critical Decision-3 (see Attachment 4).

Open Action Items

Old Action Items:

- a) Status EAW Contractors progress towards completing work at both sites [Steve Dixon]
- b) Continue to develop WBS and report progress at WGM. [Bill Freeman]
- c) Formally appoint NOvA Deputy Project Manager and get Directorate concurrence with Deputy. [Cooper/Montgomery].
- d) Status progress on pursuing alternative funding options for the construction of the far site. [Cooper/Montgomery].
- e) Formally appoint L2 managers. [Cooper]
- f) John Cooper to invite appropriate level 2 manager(s) to attend WGM. [Cooper]

New Action Items:

- g) Write MOU between University of Minnesota and Fermilab. [Cooper/Ray/Marshak]
- h) Funding should not include PED funds, understand options associated with PED funds. [Cooper/Mont]
- i) Identify Risk Management person for NOvA [Cooper/Ray]